

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number  
**WO 2004/057383 A1**

(51) International Patent Classification<sup>7</sup>: **G02B 6/00**  
(21) International Application Number:  
PCT/IB2003/005724  
(22) International Filing Date: 1 December 2003 (01.12.2003)  
(25) Filing Language: English  
(26) Publication Language: English  
(30) Priority Data:  
2002-370805 20 December 2002 (20.12.2002) JP  
(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

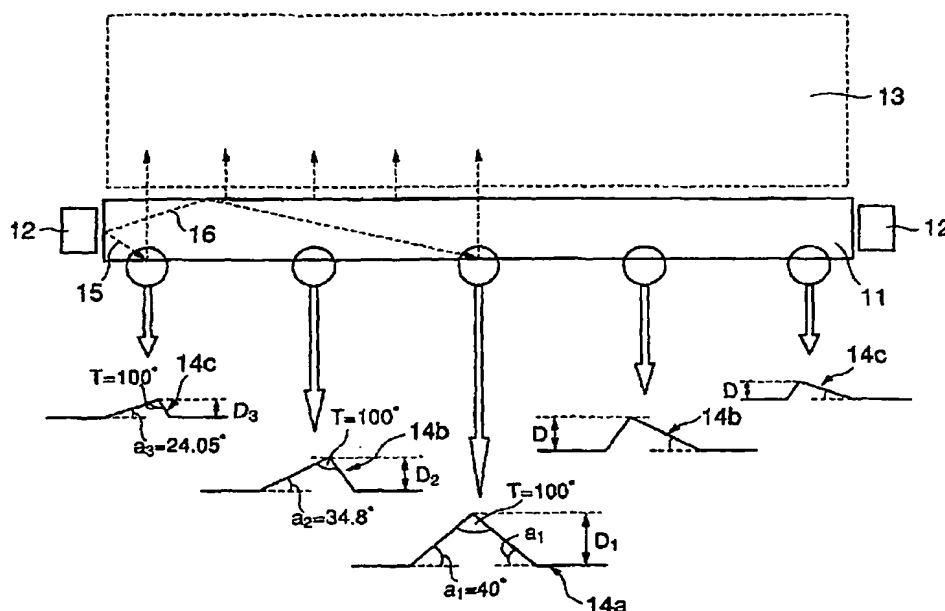
(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor; and  
(75) Inventor/Applicant (for US only): **TSUDA, Akimitsu** [JP/JP]; c/o Philips Japan, Ltd., Philips Bldg., 2-13-37, Kohnan, Minato-ku, Tokyo 108-8507 (JP).  
(74) Agent: **AOKI, Hiroyoshi**; c/o Philips Japan, Ltd., Philips Bldg., 2-13-37, Kohnan, Minato-ku, Tokyo 108-8507 (JP).

Published:  
— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ASSISTANT LIGHT SOURCE AND FRONT-LIGHT



(57) **Abstract:** To provide an assistant light source and a front-light emitting light to the light guide plate efficiently. A sectional shape of prism 14a in the center of light stick is isosceles triangle having a tip angle ( $T^\circ$ ) of  $100^\circ$  and a tilt angle ( $a_1$ ) of  $40^\circ$ . The depth of the prism 14a is  $D_1\mu\text{m}$ . A sectional shape of prism 14b in a 1/4 position from an end of light stick is triangle having a tip angle ( $T^\circ$ ) of  $100^\circ$  and a tilt angle ( $a_2$ ) of  $34.8^\circ$ . The depth of the prism 14b is  $D_2\mu\text{m}$ . A sectional shape of prism 14c in an end of light stick is triangle having a tip angle ( $T^\circ$ ) of  $100^\circ$  and a tilt angle ( $a_3$ ) of  $24.05^\circ$ . The depth of the prism 14c is  $D_3\mu\text{m}$ .